

# PCBs: What Are They?

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## ***Synonyms:***

While PCBs were manufactured and sold under many names, the most common is the "Aroclor" series. Aroclor refers to a mixture of individual chlorinated biphenyl compounds with varying degrees of chlorination. A PCB mixture with an Aroclor name usually includes a numerical identifier, which provides additional information on the properties of the mixture. The most common mixtures in the Aroclor series are Aroclor 1016, Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260. The 209 individual compounds that make up the mixtures are referred to as congeners. For a more complete list of trade names, see the EPA PCB ID web site at [www.epa.gov/toxteam/pcbld](http://www.epa.gov/toxteam/pcbld).

## ***Properties:***

PCB mixtures range from oily liquids to waxy solids. PCBs were typically manufactured through progressive chlorination of batches of biphenyl until a certain target percentage of chlorine was achieved. These mixtures tend to be chemically stable and non-flammable, with high boiling points and electrical insulating properties. PCBs tend to be hydrophobic and therefore accumulate in sediment and bioaccumulate in fish and wildlife in the environment. The same properties that made PCBs stable in industrial applications make them persistent in the environment.

## ***Uses:***

Due to their stable properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics and rubber products; in pigments, dyes and carbonless copy paper and many other applications. PCB laden oil is frequently associated with electrical transformers. More than 1.5 billion pounds of PCBs were manufactured in the United States prior to cessation of production in 1977.

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## ***Sources of Exposure:***

PCB residues have been observed in plant and animal tissue in all parts of the world. PCB residues have also been found in human adipose tissue and breast milk. Because PCBs are not naturally occurring substances, their dissemination is the result of human activity and releases to the environment, including vaporization into the atmosphere and spills to land and water.

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## ***Routes of Entry:***

According to EPA, likely routes of entry for the general population are ingestion by water and food. PCBs accumulate in the food chain, and contaminated fish tissue is a persistent source of PCBs in the human diet. Inhalation and skin contact are likely to be more significant routes of entry in occupational exposure.

## ***Some Health Effects:***

PCBs have been demonstrated to cause cancer in animals and serious non-cancer health effects in animals, including effects on the immune system, reproductive system, nervous system, and endocrine system. Studies in humans provide supportive evidence for potential carcinogenic and non-carcinogenic effects of PCBs. The different health effects of PCBs may be interrelated, as alterations in one system may have significant implications for the other systems of the body.